

APPLICATION FOR NEW COURSE

1. General Information.				
a.	Submitted by the College of: Agriculture	Today's Date:	1-20-11	
b.	Department/Division: ASC			
c.	Contact person name: David L. Harmon	Email: dharmon@uky.edu	Phone:	7-7516
d.	Requested Effective Date:	<input checked="" type="checkbox"/> Semester following approval	OR	<input type="checkbox"/> Specific Term/Year ¹ : _____
2. Designation and Description of Proposed Course.				
a.	Prefix and Number: ASC 388			
b.	Full Title: Companion Animal Nutrition			
c.	Transcript Title (if full title is more than 40 characters):	_____		
d.	To be Cross-Listed ² with (Prefix and Number):	_____		
e.	Courses must be described by <u>at least one</u> of the meeting patterns below. Include number of actual contact hours ³ for each meeting pattern type.			
	3 hours Lecture	_____ Laboratory ¹	_____ Recitation	_____ Discussion
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research
	_____ Seminar	_____ Studio	_____ Other – Please explain: _____	
f.	Identify a grading system:	<input checked="" type="checkbox"/> Letter (A, B, C, etc.)	<input type="checkbox"/> Pass/Fail	
g.	Number of credits:	3		
h.	Is this course repeatable for additional credit?			YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
	If YES:	Maximum number of credit hours:	_____	
	If YES:	Will this course allow multiple registrations during the same semester?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
i.	Course Description for Bulletin:	This course offers an introductory look at the nutrition of companion animals, primarily the dog and cat. Basic concepts in nutrition, food chemistry, biochemistry, digestive physiology and microbiology will be addressed as they pertain to pet health and well being.		
j.	Prerequisites, if any:	CHE 107 or equivalent		
k.	Will this course also be offered through Distance Learning?			YES ⁴ <input type="checkbox"/> NO <input checked="" type="checkbox"/>
l.	Supplementary teaching component, if any:	<input type="checkbox"/> Community-Based Experience	<input type="checkbox"/> Service Learning	<input type="checkbox"/> Both
3.	Will this course be taught off campus?			YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
4. Frequency of Course Offering.				

¹ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

² The chair of the cross-listing department must sign off on the Signature Routing Log.

³ In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from SR 5.2.1)

⁴ You must *also* submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

APPLICATION FOR NEW COURSE

a.	Course will be offered (check all that apply):	<input type="checkbox"/> Fall	<input checked="" type="checkbox"/> Spring	<input type="checkbox"/> Summer
b.	Will the course be offered every year?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If NO, explain: _____			
5.	Are facilities and personnel necessary for the proposed new course available?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If NO, explain: _____			
6.	What enrollment (per section per semester) may reasonably be expected?	20		
7.	Anticipated Student Demand.			
a.	Will this course serve students primarily within the degree program?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
b.	Will it be of interest to a significant number of students outside the degree pgm?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
	If YES, explain: _____	Anticipate a relatively broad student interest. Prerequisites allow for non-majors.		
8.	Check the category most applicable to this course:			
	<input type="checkbox"/> Traditional – Offered in Corresponding Departments at Universities Elsewhere			
	<input checked="" type="checkbox"/> Relatively New – Now Being Widely Established			
	<input type="checkbox"/> Not Yet Found in Many (or Any) Other Universities			
9.	Course Relationship to Program(s).			
a.	Is this course part of a proposed new program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
	If YES, name the proposed new program: _____			
b.	Will this course be a new requirement ⁵ for ANY program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
	If YES ⁵ , list affected programs: _____			
10.	Information to be Placed on Syllabus.			
a.	Is the course 400G or 500?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
	If YES, the <i>differentiation for undergraduate and graduate students must be included</i> in the information required in 10.b . You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See <i>SR 3.1.4.</i>)			
b.	<input checked="" type="checkbox"/> The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from 10.a above) are attached.			

⁵ In order to change a program, a program change form must also be submitted.

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Signature Routing Log

General Information:

Course Prefix and Number: ASC 388

Proposal Contact Person Name: David L. Harmon Phone: 7-7516 Email: dharmon@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Animal and Food Sciences	3/25/11	Bob Harmon / 7-2686 / rharmon@uky.edu	
Undergraduate Curr COmm	9/16/11	Larry Grabau / 7-3469 / larry.grabau@uky.edu	
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁶
Undergraduate Council	10/25/2011	Sharon Gill	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

⁶ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

**ASC 388
Companion Animal Nutrition
Lecture MWF 2:00, Room 109 W.P. Garrigus
Spring, 2012**

Instructor:

David L. Harmon
814 W. P. Garrigus Building
Phone 257-7516
e-mail: dharmon@uky.edu
Office hours: by appointment

Course Description:

This course offers an introductory look at the nutrition of companion animals, primarily the dog and cat. Basic concepts in nutrition, food chemistry, biochemistry, digestive physiology and microbiology will be addressed as they pertain to pet health and well-being.
Prerequisite: Chemistry 107 or equivalent

Student Learning Outcomes

Upon the completion of this course students will;

- demonstrate knowledge of nutrients required by dogs and cats
- demonstrate knowledge of common pet food ingredients and be able to interpret pet food labeling
- demonstrate knowledge of unique nutritional changes through the life stages and common diseases
- be versed in current issues in companion animal welfare
- be able to interpret and communicate current findings relating to companion animal nutrition

Required Materials

There is no required text. A list of supplementary reading materials will be provided.

Important Dates:

February	12 - Exam 1
March	3- Assignment #1 – Ingredients
March	8- Assignment #2 – Diet evaluation
March	15 - 19 Spring Break
March	24 – Assignment #3 – Case study
April	2 - EXAM 2
April	30 - Last day of classes

<u>Criterion:</u>	<u>Points:</u>
1° Exam	120
2° Exam	120
Final project	120
Class assignments	90
Class presentation	30
Weekly Quizzes	60
Class participation	<u>60</u>
Total possible points	600

<u>*Grading:</u>	90 - 100%	A
	80 - 89%	B
	70 - 79%	C
	60 - 69%	D
	< 60%	failing

***Students will be provided with a Midterm Evaluation (by the midterm date of the semester) based on criteria above.**

Exams, Class Assignments, Class Participation and Attendance:

Exams: Two 1-hour exams will be administered. Each exam will be worth 120 points. Make-up exams may only be completed if arranged with the instructor prior to the exam date.

Class assignments: Three assignments will be completed outside of class time, each worth 30 points: 1) an ingredient assignment designed to familiarize you with common ingredients (due March 3); 2) a diet evaluation problem (due March 8) and 3) a case study (due March 24). More information pertaining to each assignment will be provided later in the semester. Late assignments will be reduced by 10% each day past the due date.

Class participation and attendance: Unless prior arrangements are made the material presented in class is your responsibility. Attendance and participation in class discussions is expected. Unannounced quizzes will be administered at the beginning of some classes.

Class Presentation Assignment

- Each class member will start a class with a presentation
- The focus of this presentation will be for each person to discuss their pet(s)
- This will be a Power Point presentation
- It should be limited to 5-10 minutes
- The aim should be to introduce your pet to the class
- Discuss their care, special behaviors and your nutritional program

- If you do not have a pet then get one.
- Just kidding, you can talk about a friend's pet or about a pet you would like to have.

Final Project

Each person will be assigned a commercial pet food to critique. Each will be unique in the claims they make as to why it is good for your pet. Your goal is to conduct a critical analysis of the ingredients and the nutrient content.

- Review research papers behind the claims made for the product.
- Consider how wide spread is the ingredient/nutrient
- Provide a conclusion and recommendation that is based on fact.

For example: Your food contains ingredient Q and they claim this food is good for arthritis. You should be able to find evidence to refute or support that Q is indeed effective. A summary of your findings will be presented in class at the end of the semester.

- Each person will give a 30-35 min class power point presentation of their findings followed by questions
- They will provide a 1-2 page written abstract of their presentation to the class complete with references
- Each **presentation** and **abstract** will be presented to instructor at least 2 weeks prior to the class presentation

Final Project- 120 points

Quality of oral presentation -	40
Answers to questions -	20
Quality of visuals-	20
Soundness of conclusions-	20
Depth of material	20

Students with Disabilities

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policies

Attendance

Attendance is expected at all lectures and field trips. Any deviations require prior arrangements to be made with the instructor.

Excused absences

The following are defined as excused absences.

1. Illness of the student or serious illness of a member of the student's immediate family. Verification may be required.
2. Death of a member of the student's immediate family. Verification may be required.
3. Trips for members of student organizations sponsored by an academic unit, for university classes, or for participation in intercollegiate athletic events. The student must notify the instructor prior to the occurrence of such events.
4. Major religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day for adding a class.
5. Any other special circumstances will be dealt with on a case by case basis. Students missing work due to an excused absence bear the responsibility of informing the instructor about their excused absence within one week following the period of the excused absence.

Make-up opportunities

Opportunities to make up assignments or exams must be arranged with the instructor.

Submission of assignments.

All assignments are due IN CLASS on the dates provided with the assignment. Any deviation from this requires consent of the instructor.

Academic integrity, cheating & plagiarism.

Scholastic dishonesty is not tolerated. Forms of scholastic dishonesty include, but are not limited to: plagiarism (copying or using someone else's work as your own – intellectual theft), utilization of unauthorized materials during academic evaluations, and giving or receiving unauthorized assistance during evaluations. Even evidence of inadvertent improper use of materials can result in a charge of academic dishonesty.

Penalties for academic dishonesty vary depending on the severity of the offense and any previous offenses. The minimum penalty for a first offense is a zero on the assignment. Serious or repeat offenses will result in an E or XE grade for the course.

You may also want to visit the Academic Ombud's website: <http://www.uky.edu/Ombud>. There you will find a paper "Plagiarism: What is it?" and an online tutorial entitled "How to avoid plagiarism."

Classroom behavior, decorum and civility

The classroom provides a forum and opportunity for the exchange of information and ideas. It is understood that the ideas and opinions of all are welcomed and respected. Disruptions that may interfere with the exchange of information such as the inappropriate use of cell phones, texting on cell phones, laptop computers, etc. will not be tolerated.

Group work & student collaboration

Assignments in this course will require work in small groups. The designation of these groups is the choice of the instructor and it is expected that all students will participate willingly and equally.

General Outline of Course Materials

- 1. Pet food industry, from past to date**
 - a. Early development of pet food
 - b. Pet food industry and societal changes
 - c. Veterinarian advances. Increase in pet popularity
 - d. Developments in dry dog food production
 - i. Extruded diets
 - e. Diversifying pet food market
 - f. Modern pet food industry
 - g. World pet food market
- 2. What is nutrition? Basic concepts and definitions.**
 - a. Defining
 - i. Nutrition
 - ii. Ingredient vs. nutrient
 - iii. Nutrient essentiality
 - iv. Basal metabolic rate
 - v. Minimal requirement
 - vi. Thermoneutrality
 - vii. Maintenance
- 3. Canine and feline evolution, nutritional behavior and gastrointestinal anatomy and physiology**
 - a. Comparative anatomy
 - i. Carnivores (cat and dog) vs. omnivores and herbivores
 1. Olfaction
 2. Mouth
 - a. Gustative papillae (taste)
 - b. Teeth (number and format)
 - c. Saliva (presence or absence of amylase)
 - i. Trituration, moisten, swallowing
 3. Stomach
 - a. Ruminants vs. monogastrics
 - i. Food reservoir
 - ii. Mixing
 - iii. Fermentation or beginning of enzymatic/hydrolytic digestion
 1. Enzymes
 4. Small intestine
 - a. Duodenum
 - b. Jejunum

- c. Ileum
 - i. Morphology
 - ii. Function
 - iii. Enzymes
 - iv. Digestion
 - 1. luminal
 - 2. epithelial
 - v. absorption
 - 1. Monosaccharides
 - 2. Amino acids and di- and tri-peptides
 - 3. Long-chain fatty acids
 - 4. Vitamins
 - 5. minerals
- 5. Large intestine/ colon
 - a. Difference across animals with different feeding behavior
 - b. Length, fermentative site
 - c. Fermentation and absorption processes
 - i. Water, SCFAs, ammonia, minerals (Na, Cl)

4. Study of nutrients, dog and cat nutrient requirement peculiarities:

- a. Water
 - i. Structure
 - ii. Importance
 - iii. Water in foods
 - 1. Water content in foods
 - 2. Water activity
- b. Lipids
 - i. Definition
 - ii. Fat vs. oils
 - iii. Classification/ nomenclature
 - iv. Saturation
 - 1. Characteristics of unsaturated vs. saturated lipids
 - 2. Unsaturated vs. saturated FAs
 - v. Essential vs. nonessential FAs
 - vi. Function
 - vii. Digestion
 - viii. Synthesis in mammals
 - 1. Cats and EFA synthesis
 - ix. Lipid oxidation
 - 1. Definition

2. Activation
 3. Mechanism
 4. How to avoid it
- c. Protein
- i. Definition
 - ii. Structure
 1. AAs
 2. Peptide linkage (bonds)
 3. Levels of organization
 - iii. Classification
 - iv. Importance
 - v. Function
 - vi. Protein sources
 1. Common protein sources in pet food
 2. Animal vs. plant
 - a. Advantages and disadvantages
 - vii. Protein requirement
 1. Protein quality
 2. Amino acid profile
 - a. Taurine essential for cats
 3. Protein digestibility
 - viii. Denaturation
 1. How, when it occurs
 2. Advantages and disadvantages
 - a. Antinutritional factors
- d. Carbohydrates
- i. Definition
 - ii. Classification
 1. Monosaccharides
 2. Oligosaccharides
 3. Polysaccharides
 - a. Starch
 - i. Structure
 - ii. Digestion
 1. Cat lower ability to digest CH₂O_s
 - iii. Utilization
 - iv. Resistant starch
 - b. Glycogen
 - iii. Sources
 - iv. Importance in diet formulation/ processing

- v. Maillard Reaction
- e. Fiber
 - i. Definition
 - ii. Types
 - 1. Pectins
 - 2. Hemicellulose
 - 3. Cellulose
 - 4. Lignin
 - iii. Sources
 - iv. Function/ Importance
 - 1. Digestibility
 - 2. Satiety
 - 3. Absorption
 - a. Nutrient postprandial responses
 - 4. Diet formulation/ processing
- f. Vitamins
 - i. Definition
 - ii. Classification according to solubility
 - iii. Characteristics of water and fat soluble vitamins
 - 1. Water soluble
 - a. Vit C
 - b. Complex B
 - 2. Fat soluble
 - a. Vit A
 - b. Vit D
 - c. Vit E
 - d. Vit K
 - iv. Excesses and deficiencies
- g. Minerals
 - i. Definition
 - ii. Function
 - iii. Essentiality
 - iv. Macro and micro minerals
 - 1. Macro minerals (importance, source, requirement)
 - a. Ca, P, Na, Cl, K, Mg, and S
 - i. Ca supplementation and large breed dogs
 - 2. Micro minerals (importance, source, requirement)
 - a. Cu, Zn, Fe, Mn, I, Co, Mo, Se, F
 - i. Zn malabsorption
 - v. Excesses and deficiencies

5. Nutrition and the life cycle

- a. Neonate
- b. Young animal
- c. Maintenance
- d. Gestation/ lactation
- e. Senility
 - i. How life stages affect nutrient requirements.
 - 1. Special requirements in young and old animals vs. young adults
 - ii. Environment conditions and its effect on nutrient requirements in animals with different ages (thermoneutrality)
 - iii. Nutrient digestibility in function of age

6. Pet food processing and type of foods

- a. Extrusion
- b. Canning

7. Pet food regulation (AAFCO, NRC) and labels

- a. Agencies and their function
 - i. NRC
 - ii. AAFCO
 - iii. FDA
 - iv. USDA
 - v. State Feed Control State
- b. NRC
 - i. Function/ purpose
 - ii. Old vs. new NRC
 - 1. Problems and improvements
- c. AAFCO
 - i. Function
 - ii. Who uses it?
 - iii. AAFCO vs. NRC
- d. Labels
 - i. Purposes
 - ii. What it comprises
 - iii. Required information
 - iv. Optional information
 - v. Information panel
 - 1. Principal display panel
 - 2. Guaranteed analysis
 - 3. Ingredient statement
 - 4. Nutrition adequacy statement

5. Feeding guidelines
6. Manufacturer's name and address
7. FDA required info and/ or health claims

8. Nutraceutical ingredients

- a. Definition
- b. Uses of nutraceuticals in pet food
 - i. Oral care
 - ii. Odor control
 - iii. Health (skin, heart, gut)

9. Pet anthropomorphism and issues in companion animal welfare

- a. Pets under the owners view
- b. Changing life style
- c. My pet eat what I eat
 - i. Veggie diets
 - ii. Chocolate
 - iii. Garlic/ onion
 - iv. Mineral supplementation
- d. Natural feeding
 - i. Holistic diets
 - ii. Raw diets

10. Research and companion animal nutrition

- a. Digestibility and N balance trials
- b. Palatability trials